Objective: The purpose of the present study is to present the preliminary experience in Chile with the use of GKRS for the treatment of medically refractory essential tremor (ET).
Patients and methods/material and methods: Five ET patients underwent Gamma Knife Thalamotomy (GKT). High Resolution Magnetic resonance imaging guidance was used for VIM targeting. A single 4-mm isocenter was used to target a maximum dose of 130 Gray (Gy) to the VIM. Pre and post treatment clinical evaluation was performed using Global (A + B + C) Fahn–Tolosa–Marín tremor rating scale (FTM).
Results: The mean patient age was 68.2 years (57–80) with a mean follow-up of 18 months (6–28). In four patients (80%) an important clinical improvement was documented (mean pre-treatment FTM = 32.5 and mean post-treatment FTM = 17.9). In one patient no significant effect was observed and a second GKT was performed achieving a FTM score improvement from 28.9 to 11.5. No complication was observed.
Conclusion: GKT could be considered a safe and effective neurosurgical treatment for medically refractory essential tremor. These results are in agreement with other GKT series published in the literature and are equivalent to those obtained using radiofrequency and deep brain stimulation.

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Movement Disorders 3
Peripheral biomarkers profile in patients with parkinsonisms

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Background: Neurodegenerative diseases are increasing their prevalence in world population, so the search for new diagnostic methods has become an important necessity. Parkinson's disease (PD) as well as other forms of parkinsonisms are classified as protein misfolding diseases and evaluation of proteins like tau, alpha-synuclein (A-syn), Amyloid Beta peptide (AB) and AB precursor protein (ABPP) have been considered as biomarkers.
Methods: Three groups of subjects were recruited: PD (n = 30), Parkinson plus (n = 20) and control subjects (n = 20). Complete clinical evaluations including transcranial sonography and olfactory test were made. Blood platelets tau and ABPP were evaluated and A-syn was measured in saliva with Western blot and ELISA assays. Biomarkers profiles in different groups were compared with multivariate analyses.
Results: We describe differences in protein profiles, in particular in platelet tau between PD, Parkinson plus and control groups. It is possible to generate and associate peripheral protein profiles to standard diagnostic tests to increase diagnostic accuracy.
Conclusion: Peripheral protein profiles may serve as non-invasive biomarkers for diagnosis and follow up in parkinsonisms.

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References:

Devic I, Hwang H, Edgar JS, Izutsu K, Presland R, Pan C, et al. Salivary alpha-synuclein and DJ-1: potential biomarkers for Parkinson's disease. Brain. 2011 Jul;134(Pt 7):e178.
Farías G, Pérez P, Slachevsky A, Maccioni RB. 2012. Platelet tau pattern correlates with cognitive status in Alzheimer's disease. J Alzheimers Dis.;31(1):65–9.

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Movement Disorders 3
The relationship between smoking and substantia nigra hyper-echogenicity in Parkinson's disease patients

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Introduction: Epidemiological studies have found a significant negative association between cigarette smoking and Parkinson's disease (PD). Some studies also suggested a protective effect of smoking on Alzheimer's disease. No research have been conducted on the substantia nigra hyper-echogenicity (SNH) in smoking and non-smoking patients with PD.
Objective: To identify the relationship between cigarette smoking and cognitive impairment, and area of SNH detected by transcranial sonography (TCS) in Parkinson's disease patients.
Methods: We compared the Unified Parkinson's disease Rating Scale (UPDRS), Mini-Mental State Examination (MMSE), Frontal Assessment Battery (FAB) and Parkinson's Disease-Cognitive Rating Scale (PD-CRS) scores and TCS findings in 86 PD patients with and without smoking history.
Results: The presence of cognitive impairment in PD patients was accompanied by an increase in the SNH area (Spearman MMSE r = −0,30, p = 0,004, FAB r = −0,36, p = 0,0006, PD-CRS r = −0,31, p = 0,004) and an increase in the width of 3 ventricle (Spearman MMSE r = −0,44, p < 0,0001, FAB r = −0,45, p < 0,0001, PD-CRS r = −0,39, p < 0,0001). The average SN area was higher in dementia patients than in patients without dementia ($0.36 \pm 0.06\ cm^2$ vs. $0.32 \pm 0.06\ cm^2$, Mann–Whitney p = 0,003). Our study did not show dependence the results of neuropsychological testing and smoking history, but found that smokers had a smaller SNH area and less severity of motor disorders (Mann–Whitney p = 0,033 and p = 0,025 respectively).
Conclusion: This finding indicates that a history of smoking not only reduces the risk of PD, but also is a factor influencing the course of PD.

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Movement Disorders 3
Clinicogenetic study of CHCHD2 in patients with autosomal dominant familial Parkinson's disease

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We have identified a novel causative gene, CHCHD2 responsible for patients with autosomal dominant cases of Parkinson's disease (PD). Family members had a missense mutation (CHCHD2, 182C>T, Thr61Ile) in family A by next-generation sequencing. We obtained samples from a further 340 index patients with autosomal dominant PD, 517 patients with sporadic PD, and 559 controls. Additional three CHCHD2 mutations in four of 341 index cases from independent families with autosomal dominant PD were detected by CHCHD2 mutation screening: 182C>T (Thr61Ile), 434G>A (Arg145Gln), and 300 + 5G>A. In SH-SY5Y cells, the 300 + 5G>A mutation but not the other two mutations caused exon 2 skipping. CHCHD2 mutations could be a cause for autosomal dominant PD. Clinical phenotypes of patients with CHCHD2 mutations show tremor dominant PD and uptake of ^{123}I-MIBG myocardial scintigraphy of one patient from family A is decreasing. However, dementia and urinary urgency were not observed among all patients with CHCHD2 mutations

so far. Clinical phenotypes are very similar to those of PARK8 except for dementia. Taken together, clinical phenotypes are benign including good responsiveness to levodopa compared to PARK8. Further studies will be needed to evaluate the clinical symptoms such as the presence of depression or olfactory dysfunctions.

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Movement Disorders 3
Study to evaluate the safety, dosage levels and response to inosine administration in Parkinson's disease

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Background and objective: Neuroprotective agents for Parkinson's disease have been investigated. We confirmed the values of uric acid with PD in Japan were lower compared to the controls (Iwaki et al. Ehime Medical Journal, 2013). Uric acid might be neuroprotective in PD. Inosine is the precursor of uric acid in the body. We evaluated the safety, dosage levels and response of inosine administration in Parkinson's disease.
Patients and methods: Patients with PD who showed lower values of uric acid were enrolled. Patients who suffered from renal or gall bladder stone were excluded. Ten subjected were enrolled and 500 to 1500 mg of inosine were prescribed once or twice a day to keep the values more than 6 mg/dl in the blood for one year. They were also examined by the echographic examination every 3 month to find renal or gall bladder stones. The study was approved by IRB and was done in accordance to Helsinki Declaration.
Results: The uric acid of the patients increased more than 6 mg/dl or high. There were no severe or no intolerable signs or symptoms. No patients showed the increase of UPDR scores at ON time. No patients aborted the program.
Conclusion: The doses of inosine would be 500 to 1500 mg per day to keep the uric acid level more than the mean value, and the doses applied were safe up to one year. There was no increase of part 3 UPDRS scores at the ON time up to one year.

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